Quick Test - Proportionality

1. Two variables are connected by the relationship y α x. When x = 0.2, y = 1.8.
a. Write a formula for y in terms of x
b. Work out y when x = 0.16
c. Work out x when y = 29

(a) $y \alpha x$
$y = kx$
$1.8 = k \times 0.2$
$9 = k$
$y = 9x$

(b) $y = 9x$
$y = 9(0.16)$
$= 1.44$
$y = 1.44$

(c) $y = 9x$
$29 = 9x$
$\frac{29}{9} = x$
$x = 3.2$

2. The cost of petrol for a journey is directly proportional to the distance travelled. Joe travels 130 miles and spends £15 on petrol. Calculate
a. The cost of petrol for a journey of 190 miles
b. The length of a journey costing £12.75

$C \alpha D$
$C = kD$
$15 = k \times 130$
$\frac{3}{26} = k$

(a) $C = \frac{3}{26} D$
$C = \frac{3}{26}(190)$
$C = £21.92$

(b) $C = \frac{3}{26} D$
$12.75 = \frac{3}{26} D$
$110.5 = D$
110.5 miles

3. A is inversely proportional to B. When A = 4, B = 6
a. Write a formula for A in terms of B
b. Calculate B when A = 12
c. Calculate A when B = 0.4

(a) $A \alpha \frac{1}{B}$
$A = \frac{k}{B}$
$4 = \frac{k}{6}$
$24 = k$
$A = \frac{24}{B}$

(b) $A = \frac{24}{B}$
$12 = \frac{24}{B}$
$B = \frac{24}{12}$
$B = 2$

(c) $A = \frac{24}{B}$
$A = \frac{24}{0.4}$
$A = 60$

Grade 5 ish